Amendments to the Specification

The changes in the specification from its immediate prior version are shown with ~~strikethrough~~ or [[double brackets]] for deleted matter and underlines for added matter.

1. Please amend the title on the cover page and page 1 as follows:

A METHOD OF MANUFACTURING A BASE PLATE FOR A [[ENCAPSULATED]] MINIATURE HARD DISC DRIVE.

2. Please amend the paragraphs on page 6, lines 1-12 as follows:

FIG. 2 is a top view of a hard disc drive of the present invention with the cover, actuator and read-write head removed, and showing the remaining components encapsulated in the monolithic body with dashed lines.

FIG. 3 is a cross-sectional view of the hard disc drive of FIG. 2 with its cover on, but without the actuator and read-write head, from a vertical cross-sectional view sectioned along [[a]] line 3-3 of FIG. 2 [[through the spindle motor and actuator assembly axis of rotation]].

FIG. 4 is a top view of a metal strip after being through the injection molding process.

FIG. 5 is a perspective view of [[an injection molding process of]] a metal strip with a base plate made by an injection molding process of the present invention.

FIG. 6 is a perspective view of a metal strip with a base plate and cover [[in]] made by an injection molding process of the present invention.

3. Please amend the paragraph on page 6, lines 19-24 as follows:

Referring to FIG. 3, the major elements of the miniature hard disc drive [[drive]] system 10 of the present invention are shown, including hard disc 100, spindle motor assembly 200, and an actuator assembly 300. These components are attached to a base portion 108 of a housing. The base plate 108 is preferably made of stamped

steel. A shell portion forms a cover 111, and in conjunction with the base portion 108, encloses the aforementioned disc drive components.

4. Please amend the paragraph on page 7, line 24 to page 8, line 4 as follows:

In the present embodiment, the integral hub 102 is fixedly mounted to a shaft 206 forming the axis of rotation 202 of the motor [[202]] 200. The shaft 206 is mounted to the base plate 108 using pins (not shown) or other conventional mounting means. Bearing supports 208 are journalled about the shaft 206 and support a rotor 210 comprised of the hub 102 and a permanent magnet 214 positioned on a outer surface of the hub 102 facing the stator 204. The interaction of a magnetic field generated by the stator 204 with the rotor permanent magnets 214 propels the rotor 210 to spin. The rotor 210, having the hub 102 as an integral component, rotates the hard disc 100. In the preferred embodiment shown in FIG. 3, there is also a base 215 that houses bearing supports 208 and shaft 206. The base 215 is not essential to practice the invention and can be removed, and instead the hub 102 can be used to house the bearing supports 208 and shaft 206.

5. Please amend the paragraph on page 8, line 13 to page 9, line 8 as follows:

Referring to FIGS. 2 and 3, the stator 204 of the spindle motor assembly 200 and the housing 310 of the actuator assembly 300 are unitized with the base plate 108 by encapsulating them with a top surface of base plate 108. Conventionally, the spindle motor assembly and actuator assembly are mounted to the base using conventional mounting features such as connecting pins or glue. In the present embodiment, the stator 204 and the housing 310 of the actuator assembly 300 and a top surface of the base plate 108 are encapsulated with a phase change material to form a unitized, preferably monolithic, body 250. The phase change material used to make the body 250 is preferably a thermally conductive but non-electrically conductive plastic. In addition, the plastic preferably includes ceramic filler particles of either boron nitride or preferably aluminum [[nitrideThe]] nitride. The coefficient of linear thermal expansion

("CLTE") of the plastic is preferably between the CLTE of steel and the CLTE of aluminum over the operating temperature range of the hard disc drive. A preferred form of plastic is polyphenyl sulfide (PPS) sold under the trade name "Konduit" by LNP Engineering Plastics. Grade OTF-212-11 is particularly preferred. Examples of other suitable thermoplastic resins include, but are not limited to, thermoplastic resins such as 6,6-polyamide, 6-polyamide, 4,6 polyamide, 12,12-polyamide, and polyamides containing aromatic monomers, polybutylene terephthalate, aromatic polyesters, liquid crystal polymers, polycyclohexane dimethylol terephthalate, copolyetheresters, polyphenylene sulfide, polyacylics, polypropylene, polyethylene, polyacetals, polymethylpentene, polyetherimides, polycarbonate, polysulfone, polyethersulfone, polyphenyloxide, polystyrene, styrene copolymer, mixterus and graft copolymers of styrene and rubber, and glass reinforced or impact modified versions of such resins. Blends of these resins such as polyphenylene oxide and polyamide blends, and polycarbonate and polybutylene terephthalate, may also be used in the invention.

6. Please amend the paragraph on page 9, lines 23-30 as follows:

The hard drive shown in FIGS. 2 and 3 is made in part using an encapsulation technique. This encapsulation technique involves the following steps, and uses an injection mold. First, a mold is constructed to produce a part with desired geometry. The mold has two halves or cavities. In a preferred embodiment, the base plates are stamped into a continuous strip of metal which is fed through the mold. As shown in FIG. 4, the strip 130 creates multiple plates 108. In alternative embodiments, the base plates 108 can be placed side by side for multicavity molding, or as is shown in Figure [[5]] 6 the cover can be fabricated on the same strip of metal.

7. Please amend the paragraph on page 10, lines 1-8 as follows:

A preferred embodiment has the cover and base plate fabricated side by side during molding, as shown in FIG. 6. In this process a metal strip having both a base plate and a cover is placed in a two cavity mold. A monolithic body of phase change

material is then injected onto the base plate and onto the cover to form lips, grooves, and other body features. The lips may be like lip 370 and form an air dam inside the housing. The grooves may be dimensioned and placed, such as grooves 360, to provide the mounting so that the hard disc drive can be used in devices that accept Type I or Type II flash memory devices. In that regard, one of the grooves preferably has a width of about 0.063 inches and the other of the grooves preferably has a width of about 0.039 inches, and the grooves are manufactured with a tolerance of 0.002 inches in their width. After the strip is removed from the molding machine, and after the other internal components have been added to the drive, the cover is attached to the base plate using processes well known in the art, such as heat staking, sonic welding or gluing [[glueing]].

8. Please amend the paragraph on page 11, lines 12-23 as follows:

As illustrated in [[FIGS. 5 &]] FIG. 6, the metal strip 130 having a base plate 108 and cover 111 may be fed continuously into an injection molding machine which would perform the injection molding step on each base plate and cover. The injection molding machine encapsulates hard disc drive components to the base plate and forms body features on the cover with a monolithic body of phase change material. The injection molding machine preferably performs these steps simultaneously, but it is also possible to perform them sequentially. One of ordinary skill in the art will appreciate that it is also possible to have an injection molding machine with multiple cavities so that several metal strips may be fed into the injection molding machine, thereby further increasing the efficiency of the process. After removing the metal strip from the mold, the cover may be separated from the strip or folded over and fixedly attached to the base plate.

9. Please amend the paragraph on page 12, lines 1-8 as follows:

Additionally, to reduce height and improve manufacturability, in one alternative embodiment, the cover 111 of the hard drive can be a printed circuit board. Using a circuit board as a cover obviates the necessity of having a separate cover. It is also contemplated that plastic may be injection molded around the edges of the cover so that the edges of the cover and the base plate 108 are made from the same material. In this manner [[The]] the cover may also be fixed to the base plate by methods well known in the art, such as heat staking, sonic welding or gluing [[glueing]].

10. Please amend the paragraph on page 16, lines 18-23 as follows:

Also, the encapsulation reduces outgassing because varnish used to insulate wire in the windings and epoxy used to prevent steel laminations from oxidizing are hermetically sealed inside the stator assembly. Also, with fewer parts there is less glue needed to hold parts together. This reduced outgassing reduces the amount of material that could [[effect]] affect the magnetic media or heads used in the disc drive.

11. Please amend the paragraphs on page 19, lines 5-9 as follows:

The use of an encapsulated stator allows the terminal connectors 350 to be integrated into the body, as shown in FIGS. 3, 5 and 6. In general, the motor can be more easily assembled and will include fewer parts. As noted above, the stack-up tolerances are reduced because fewer components are used and the phase change material can be designed with a CLTE that closely approximates that of other motor components.